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AUTHOR(S):

HAYASHI, TOMOAKI

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Prepositionalities of Deverbal Prepositions:

Differences in Degree of Grammaticalization*

Tomoaki Hayashi

Kyoto University & Japan Society for the Promotion of Science (JSPS)

hayashi@hi.h.kyoto-u.ac.jp

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1. Introduction

How do lexical items change into grammatical forms? Recently, many linguists have become interested in this topic, undertaking studies on grammaticalization to investigate the diachronic change of the grammatical category from “content words” to “function words.” Among the linguistic phenomena that undergo such change, what have been termed “deverbal prepositions” such as *during*, *failing*, *notwithstanding*, *except*, and *past* are cases in point (Fukaya 1997; Kortmann and König 1992). Previous studies have provided empirical analyses of the diachronic development of lexical items and their pathways of grammaticalization based on data from the Oxford English Dictionary (OED) or from historical corpora such as the Corpus of Historical American English (COHA). They have analyzed individual lexical items such as *following* (Olofsson 1990), *considering* (Kawabata 2003), *excluding* (Hayashi 2013b), *barring* (Hayashi in press), *seeing/supposing (that)* (Mair 2004), *notwithstanding* (Rissanen 2002), and *supposing* (Visconti 2004).

The aim of this research, however, is to demonstrate the degree of grammaticalization of the items, presupposing that the process whereby verbs are grammaticalized into prepositions is gradual (see Hopper and Traugott 2003: 107), and that this categorical change from verbs to prepositions can therefore be examined in terms of an incremental transfer from the verbal to the prepositional pole. The current investigation suggests that these items are better analyzed with respect to their degree of “verbality” and/or “prepositionality” to avoid creating a dichotomy between verbs and prepositions. The objects of analysis in this study are 37 deverbal prepositions collected from previous studies and dictionaries:¹

- (1) *according to, allowing for, bar, barring, bating, concerning, confronting, considering, covering, depending on, during, except, excepting, excluding, facing, failing, following, given, granted, granting, including, lacking, notwithstanding, owing to, past, pending, pertaining to,*

preceding, regarding, related to, respecting, save, saving, starting, succeeding, touching, wanting

Note that Kortmann and König (1992) indicate that deverbal prepositions are “marginal in their lexical class,” because of the following five characteristics:

- (2) a. low frequency (often due to stylistic constraints)
- b. number of syllables
- c. exclusion from syntactic rules typical of the core group of prepositions (such as preposition stranding)
- d. restricted range of meanings
- e. conversion of verbal properties (for example, deictic character of *come* and *ago*, combinability with adverbs)

(*ibid.*: 683)

Thus, the prepositionality of these items will be examined in terms of whether or not they behave as typical prepositions grammatically (or syntactically). This study analyzes the items using the judgments or characteristics of PPs (prepositional phrases) that have been employed in previous studies, such as (i) the cleft construction (Emonds 1976: 132–134, 173–174) and (ii) “behavior of the particle *right*” (*ibid.*: 174–175).

2. Previous studies

2.1 Theoretical backgrounds

It is widely known that the process of grammaticalization displays certain characteristics. For instance, Hopper (1991) proposes five principles of grammaticalization: layering, divergence, specialization, persistence, and decategorialization. Hopper and Traugott (2003) also note the principles of pragmatic inferencing, semantic bleaching, renewal, and reanalysis. In what follows, I aim to investigate the phenomenon of decategorialization in more detail since it is highly relevant to the grammaticalization of deverbal prepositions.

Hopper and Traugott (2003: 107) claim that “when a form undergoes grammaticalization from a lexical to a grammatical form... it tends to lose the morphological and syntactic properties that would identify it as a full member of a major grammatical category such as noun or verb.” This kind of change is manifested as “a cline of categoriality”:

- (3) major category (> intermediate category) > minor category (*ibid.*)

They further claim that major categories such as nouns and verbs are relatively “open” classes, while minor categories such as prepositions and conjunctions are relatively “closed” classes. They also indicate that “adjectives and adverbs comprise an intermediate degree between the major and minor categories” (*ibid.*). Moreover, they maintain that this categorical change, as shown in (3), has “unidirectionality”: the change can only occur from major to minor categories and not from minor to major categories.

In fact, Hopper (1991: 31) takes *considering* in (4) as an example and claims that it “has no properties of the verb *to consider*” and “is perhaps to be described as a preposition” as it does not hold syntactic constraints in “co-reference.” By co-reference he means that “at least the written language requires that the subject of the main clause and the understood subject of the participial clause be identical” (*ibid.*).

- (4) *Considering* its narrow beam, the boat is remarkably sea-worthy. (*ibid.*; italics mine)

Many deverbal prepositions, called “dangling participles” (see Akimoto 2014: 190; Kortmann and König 1992: 679; Olofsson 1990: 24), behave in the same way grammatically as *considering*. Referring to Hopper’s (1991) principle of “layering,” Akimoto (2014: 190) claims that syntactic ambiguity can be observed in the grammaticalizing process whereby dangling participles can function both verbally and prepositionally. He observes some examples of *considering* in which its behavior is interpretable both as a present participle and as a preposition, because there are many cases of *considering* in which the subject is the same in the main clause and subordinate clause (Akimoto 2014: 185). This kind of ambiguity has been gradually lost over time, but both uses of *considering* (as preposition and participle) can still be observed in present-day English (*ibid.*: 190; italics in original).

Regarding decategorialization, Hopper and Traugott (2003: 108) claim that “as they have grammaticalized, verbs may lose such verb-like attributes as the ability to show variation in tense, aspect, modality, and person-number marking,” as in (5).

- (5) a. *Carefully considering/Having carefully considered* all the evidence, the panel delivered its verdict.
 b. *Considering (*Having carefully considered)* you are so short, your skill at basketball is unexpected.

(*ibid.*; italics mine)

Hopper and Traugott claim that the participle *considering* in (5a) can collocate with an adverb modifier *carefully*, and its tense can be either present or past to meet the subject-identification rule; on the other hand, *considering* in (5b) is understood as a

conjunction, because “none of these verb-like attributes are available to *considering*” (*ibid.*). This paper adopts Hopper and Traugott’s assumption of decategorialization, meaning that verbs may gradually become grammaticalized as prepositions and that this categorical change, i.e., the pathway of grammaticalization, has unidirectionality.

2.2 Gradualness in the degree of prepositionality

In their study, Kortmann and König (1992: 684) argue for a “gradient with respect to the degree of reanalysis of participles as prepositions,” represented as follows:

lowest degree			highest degree	
<hr/>				
<i>facing</i>	<i>considering</i>	<i>according to</i>	<i>during</i>	<i>past</i>
<i>lining</i>	<i>failing</i>	<i>allowing (for)</i>	<i>pending</i>	<i>ago</i>
<i>preceding</i>	<i>barring</i>	<i>owing to</i>	<i>except</i>	<i>bar</i>
<i>succeeding</i>	<i>following</i>	<i>notwithstanding</i>	<i>concerning</i>	

Figure 1: Gradient with respect to the degree of reanalysis of participles as prepositions (*ibid.*)

In Figure 1, *past*, *ago* and *bar* “exhibit the highest degree of reanalysis,” i.e., they are at the highest degree of prepositionality. This may be because they are all “monomorphemic” and it is unclear if they originated as derivations from other words. The next level of participle, including *during* and *pending*, also marks a relatively high degree of reanalysis; however, as it consists of complex morphemes, it is clear how they have developed into prepositions, despite the fact that their underlying verb stems are not in current use. Participles such as *according to*, *allowing (for)*, and *owing to* are of a lower degree because they are more complex in form than *during* and *pending*. Lastly, *facing*, *lining*, *preceding*, *succeeding*, *failing*, *barring*, and *following* have partially functional or semantic similarity to typical prepositions such as *after*, *before*, or *about*, with which they can be replaced in a specific context.

Another study of note was that of Fukaya (1997), which utilized a corpus-based survey of the 14 *-ing* prepositions cited in Sinclair (1991): *according to*, *barring*, *concerning*, *considering*, *depending on*, *during*, *excepting*, *excluding*, *following*, *including*, *notwithstanding*, *owing to*, *pending*, and *regarding*. He examined three “prepositional properties”: (i) “subject interpretation,” (ii) pied piping and stranding, and (iii) “development into prepositional adverbs” (Fukaya 1997: 287 – 293) to demonstrate the gradualness of their grammaticalization. Subject interpretation refers to whether the *-ing* preposition can meet the “identical-subject rule” (*ibid.*: 293) in the participial construction. This is related to Hopper’s (1991) principle of decategorialization, as in sentence (4). Fukaya (1997) examines 14 *-ing* prepositions using this principle, as in (6):

- (6) a. Should we, *considering* the circumstances, send a representative to the funeral?
 b. *Considering* the conditions in which they worked, this is scarcely surprising.

(*ibid.*: 291; italics mine)

Sentence (6a), which has *we* as the subject of the subordinate clause and main clause, demonstrates that the subject interpretation rule is applicable, while sentence (6b), which (perhaps) has the speaker as the understood subject of the subordinate clause and *this* as the subject of the main clause, demonstrates that the subject interpretation rule does not work in some cases. The numbers in (7) refer to Fukaya's survey of applicability of this rule to each of the above-mentioned *-ing* forms: the numbers on the left indicate applicable cases; those on the right indicate inapplicable cases.

- (7) during: 0/2024, according (to): 0/700, depending (on): 0/108, concerning: 0/67, notwithstanding: 0/32, pending: 0/20, regarding: 3/66, including: 98/1144, excluding: 4/42, owing (to): 4/36, following: 92/417, barring: 1/4, considering: 19/53, excepting: 2/1

(*ibid.*)

This survey demonstrates that the grammaticalization of *-ing* forms into prepositions is gradual; *regarding*, *including*, *excluding*, *owing (to)*, *following*, *barring*, *considering*, and *excepting* are "found to be at intermediate positions on the cline" and to behave both as prepositions and participles (*ibid.*).

Fukaya (1997) also indicates that some *-ing* forms behave as pied piping, as in (8a-c), and stranding, as in (8d).

- (8) a. An essential part of the programme is a period of practical training in France *during which* students apply their accumulated knowledge of the country and its language.
 b. Likewise, Kant formulated the nebular hypothesis, *according to which* the solar system was evolved from a rotating mass of incandescent gas, ...
 c. They were witnessed in the ministry at three in the afternoon, *following which* the parties involved got down to some serious drinking.
 d. "Could I speak to Mr James, please?" "May I tell him what it's *concerning*?"

(*ibid.*: 292; italics mine)

In his analysis of corpora and dictionaries, Fukaya finds pied piping with *during* (77 instances), *according to* (1), and *following* (5), and stranding of *concerning* (1).

Based on the analysis above, Fukaya (1997) evaluates prepositional properties as in (9):

- (9) a. identical-subject rule: *during, according to, depending on, concerning, notwithstanding, pending*
 b. pied piping and stranding: *during, according to, following, concerning*
 c. prepositional adverbs: *considering, following, notwithstanding*
- (ibid.: 293)

Finally, he concludes that *during, according to, concerning, following, and notwithstanding* “are more grammaticalized into prepositions than the others since they have more prepositional properties” (ibid.); that is, the *-ing* prepositions that meet more than one property in (9) can be said to have been more grammaticalized into prepositions than the other nine *-ing* prepositions.

2.3 An attempt to define “verbality” of deverbal prepositions

My earlier work (Hayashi 2014) can perhaps be evaluated as an attempt to examine grammaticalization into deverbal prepositions in terms of verbality. I focused on the adverbial collocation of deverbal prepositions, which gradually changes as these items grammaticalize from verbs into prepositions. As the verb *consider* has grammaticalized into the deverbal preposition *considering*, it does not co-occur with an adverb such as *carefully* because it has lost its verbal property. Thus, when a verb becomes grammaticalized into a deverbal preposition, it tends to become less acceptable in collocation with adverbs. However, this is not the case where the verbal property of the verb has been preserved. For example:

- (10) a. When you finish college, I think you should *seriously consider* getting a Ph.D. in theology, ...
 b. It is necessary to *carefully consider* many issues related to implementation in a specific context.
- (COCA)

The verb *consider* can co-occur with adverbs such as *seriously* and *carefully* as in (10), while it does not co-occur with such adverbs as in (11b, c) in the case of the deverbal preposition *considering*:

- (11) a. He looks young, *considering* his age. (Genius)
 b. ?He looks young, *seriously considering* his age.
 c. ??He looks young, *carefully considering* his age.

(Hayashi 2014: 207)

Hayashi (2014) explained the degree of decategorialization of each deverbal preposition in terms of decrease of acceptability as in (11b, c). For example, the verb *lack* can often collocate with the adverb *completely*, as in (12a). The example in (12b) includes the deverbal preposition *lacking*. The deverbal preposition *lacking* can also co-occur with the adverb *completely*, as in (12c). Therefore, *lacking* in (12b, c) preserves more verbal properties than the case of *considering* in (11).

- (12) a. They *completely lack* the ability to...
 b. He was a wild young man, *lacking* reserve. (example sentence from (12c))
 c. He was a wild young man, *completely lacking* reserve. (KDEC)

(Hayashi 2014: 207–208)

In a previous study (Hayashi 2014), I surveyed 28 deverbal prepositions, in which I examined the adverbs that occur with a target verb,² for example, the adverb *typically* collocating with the verb *include*, as shown in (13a). I created sentences by adding these adverbs to deverbal prepositions, as in (13b, c), and asked one native speaker of British English to judge the acceptability of these sentences.

- (13) a. These treatments *typically include* psychotherapy, a drug, or what amounts to a placebo, such as supportive counseling during a waiting period. (COCA)
 b. I've got three days' holiday *including* New Year's Day. (OALD)
 c. *I've got three days' holiday *typically including* New Year's Day.

(Hayashi 2014)

The results of this survey are shown in Table 1. The top row of the table, which is shaded, shows each of the deverbal prepositions, the second row shows the adverbs tested in the analysis, and the third row shows the results of the native speaker judgment of acceptability. OK is acceptable (in syntax and semantics), ? is slightly unnatural (in syntax and semantics), and * is unacceptable (cf. *ibid.*: 209). Rows 4 to 12 of the table simply repeat the organization method of the first to third rows.

Table 1: Deverbal prepositions and adverbial collocations (*ibid.*: 208)

allowing for	barring	concerning	confronting	considering	covering	during
theoretically	immediately	directly	directly	carefully	exactly	exactly
?	*	*	?	*	*	*
excluding	excepting	facing	failing	following	given	granted
explicitly	–	currently	completely	directly/ immediately ⁸	explicitly	generously
?	–	OK	?/*	OK or *	?	*
including	lacking	notwithstanding	owing to	past	pending	preceding
typically	completely	clearly	largely	quickly	–	immediately
*	OK	?	?	*	–	OK
regarding	respecting	rising	saving	starting	touching	wanting
usually	usually	usually	actually	typically	briefly	really
*	*	*	?	*	?	*

From the results, I evaluated the deverbal prepositions as follows:

(14) OK: facing, (following), lacking, preceding

?: allowing for, confronting, (failing), given, notwithstanding, owing to, saving, touching

*: barring, concerning, considering, covering, during, (failing, following), including, past, regarding, respecting, rising, starting, wanting

(*ibid.*)

When the example sentences are judged as OK, i.e., when the deverbal prepositions whose adverbial collocations are still preserved have not lost their verbal property, they have high verbality and low prepositionality. On the other hand, when the sentences are judged as *, i.e., when the collocations have been lost since the verbs have grammaticalized into deverbal prepositions, the items have lost their verbal property. Thus, they have low verbality and high prepositionality. The results indicate the different degree of grammaticalization of each item.

2.4 Implications of Previous Studies

Considering the previous studies explicated above, grammaticalization from verbs into prepositions can be regarded as a gradual process. Focusing on the subject identification rule and adverbial collocation, Fukaya (1997) and Hayashi (2014) consider loss of verbal property to characterize grammaticalization. Fukaya (1997) maintains that this loss is one

of the prepositional properties, demonstrating the gradualness of this process by analyzing corpus data related to subject interpretation, as in (7). However, there are three remaining problems. First, there is no agreement on what can be defined as a deverbal preposition; it is possible that the gradualness of grammaticalization makes it difficult to clarify prepositionality.³ Second, there are a number of further deverbal prepositions that have yet to be analyzed (cf. Kortmann and König 1992, as in Figure 1). Hayashi (2014) analyzes examples from dictionaries and previous studies (cf. Hayashi 2013a), while Fukaya (1997) also analyzes the *-ing* prepositions in Sinclair (1991). However, there is no comprehensive description that integrates all such prepositions under a unified viewpoint. Third, further parameters that characterize the pure “prepositionality” of deverbal prepositions must be considered. Compared to typical prepositions such as *about*, *after*, and *before*, the categorical behavior of deverbal prepositions needs to be discussed in detail.

As a solution to these problems, in this study, I conduct a further survey based on informants’ judgment and offer a comprehensive analysis of 37 deverbal prepositions, employing the two tests used in Emonds (1976) to identify prepositions. This process is described in the next section.

3. Prepositionality of deverbal prepositions

This section examines the prepositionality of the 37 prepositions listed in (1) using the following syntactic tests: the cleft construction and the behavior of the particle *right*. I administered two questionnaires to native speakers to judge the test sentences (see *Appendix* for details) on a maximally five-point Likert-type scale: 5 = acceptable and natural; 4 = acceptable, but perhaps somewhat unnatural; 3 = doubtful, but perhaps acceptable; 2 = marginal, but not totally unacceptable; 1 = thoroughly unacceptable; 0 = horrible. In total, 18 answers were collected. Based on the average acceptability score, the prepositionality (i.e., the acceptability of an item as a preposition from the test that examined “typicality” as a preposition) of each item was estimated. The procedure and results of the two tests are explained in subsections 3.1 and 3.2.

3.1 Test 1: The cleft construction

Maruta and Hirata (2001: 121–123), citing Emonds (1976), indicate that cleft sentences can be used as a test to distinguish PPs from adverbs. Hence, I assume that noun phrases (NPs) and PPs can be emphasized in cleft sentences, while participles cannot. NPs or PPs can be inserted into cleft sentences, but adverbial phrases cannot be paraphrased into cleft sentences, as in (15) and (16):

- (15) a. It's *the custard pie* that I disliked. (NP)
 b. It was *a tax break* that was counted on. (NP)
 c. It was *to John* that she spoke. (PP)
 d. It is *with great pleasure* that I presented our speaker. (PP)
- (16) a. *It was *too carefully* that she spoke. (AdvP)
 b. *It's *very unhappy* that Bill is. (AP)
 c. *It is *blow up some buildings* that you should. (VP)

(Emonds 1976: 133)

Using this cleft sentence test, (17) can be assumed:

- (17) Presupposition A: As the prepositionality increases, the phrase including the *-ing* preposition can be emphasized in cleft sentences.

In this study, sentences including the 37 deverbal prepositions in (1) were emphasized using cleft sentences (see *Appendix* (B1-B37)), and the acceptability of these sentences was judged by eight English native speakers: four American English speakers, two Australian English speakers, one British English speaker, and one Canadian English speaker. Here, the average score of acceptability of each item was assumed to constitute its prepositionality. Table 2 shows the results of the research.⁴

Table 2: The prepositionality of deverbal prepositions assumed by the cleft construction
 (Numbers in parentheses are the prepositionality of each item)

Prepositionality	Deverbal Preposition
More than 3	during (4.6), following, starting (3.5), according to, succeeding (3.1), pertaining to (3.0)
More than 2 to 3	owing to, past (2.9), regarding (2.6), depending on (2.4), given, respecting (2.3), excluding, related to, including, pending (2.1)
More than 1 to 2	concerning (2.0), barring, preceding (1.9), except (1.8), confronting (1.6), allowing for, granting, notwithstanding (1.5), failing (1.4), considering, covering, lacking, save, touching (1.3)
1 or lower	wanting (1.0), granted (0.9), saving (0.8), bar, bating, excepting, facing (0.5), bating (Poutsma 1926) (0.4)

According to Table 2, apart from 16 deverbal prepositions, all others had a relatively low prepositionality, i.e., scored lower than or equal to 2.0 for prepositionality. The items that

denote spatio-temporal back-and-forth relationships, such as *during*, *following*, *starting*, *succeeding*, and *past* scored high for their degree of prepositionality; this tendency indicates that, in some aspects, high prepositionality is perhaps related to the meaning typical in prepositions. Moreover, archaic, old-fashioned items that are rarely observed (presumably as they are obsolete) in present-day English such as *bating* (cf. Curme 1979: 330, 563; Jespersen 1954: 410; Visser 1972: 1218; GENIUS; Readers) are judged at the lowest level of prepositionality both in the example sentence for *barring*, which had a similar meaning, and in a sentence from Poutsma's book, which was published in the 1920s (see *Appendix*; Poutsma 1926: 712). The results indicate that more than half of the deverbal prepositions have low prepositionality, which supports the description in Kortmann and König's (1992) study that "they are marginal" in the category of prepositions.

3.2 Test 2: Co-occurrence with *right*

Maruta and Hirata (2001: 121) also indicate that co-occurrence with the intensifiers *right/straight* can be a judgment test for identifying prepositions. Emonds (1976: 174) notes that the members of the category of prepositions "that express spatial or temporal location and direction (but not frequency) can all be preceded by *right*."

- (18) a. He kept on drinking *right until* midnight.
 b. She put it *right into* her pocket.
 c. The boy came *right from* the store.
 d. They kissed *right after* the ceremony.

(cf. *ibid.*; italics mine)

From this observation, I assume that co-occurrence with *right* can be a valid test to identify whether the deverbal prepositions behave in the same way as prepositions with spatial or temporal meaning, such as *at*, *by*, *for*, *from*, *in*, *on*, *to*, *about*, *above*, *after*, *before*, and *into* (cf. Ando 2005: 621, 632). As in 3.1, the examples including deverbal prepositions in (1) were judged with regard to whether they can co-occur with the intensifier *right* (see *Appendix* (C1-C37)). The acceptability of the sentences was judged by ten English native speakers: six American English speakers, three Australian English speakers, and one Canadian English speaker. The prepositionality of each item was then assumed depending on the average level of acceptability. Table 3 shows the results of the research.

Table 3: The prepositionality of deverbal prepositions assumed from co-occurrence with *right* (Numbers in parentheses are the prepositionalities of each item)

Prepositionality	Deverbal Preposition
More than 3	past (4.9), preceding (3.4), regarding (3.2)
More than 2 to 3	including (3.0), following (2.9), during (2.8), depending on, starting (2.5), according to (2.3), lacking, succeeding (2.1)
More than 1 to 2	allowing for, pertaining to, touching, save (2.0), except, granting, related to (1.8), concerning, excluding (1.7), confronting, given, notwithstanding, pending, respecting (1.6), considering, owing to (1.5), bar, barring, granted (1.4), failing, saving, wanting (1.3), covering (1.2)
1 or lower	facing (1.0), excepting (0.9), bating, bating (Poutsma 1926) (0.8)

According to Table 3, deverbal prepositions that express spatial or temporal meaning, such as *past*, *preceding*, *during*, *including*, and *following* (paraphrased as “*after*” in some contexts, but not always; cf. Olofsson 1990) tend to mark high prepositionality. *Regarding*, on the other hand, which does not have a spatial or temporal meaning, scores relatively highly for prepositionality. Moreover, apart from 11 prepositions (*past*, *preceding*, *regarding*, *including*, *following*, *during*, *depending on*, *starting*, *according to*, *lacking*, and *succeeding*), the remainder scored lower than or equal to 2.0 in prepositionality. This result indicates that deverbal prepositions are marginal in terms of prepositionality. *Bating* also scored the lowest here, as in Test 2. It is also noteworthy that the prepositions meaning *exception* (cf. Koma 2001), such as *save*, *except*, *excluding*, *bar*, *barring*, *saving*, and *excepting*, scored less than or equal to 2.0; thus, it may be said that the meaning of prepositions bears some relation to their degree of prepositionality.

3.3 Summary of the study

This study tested the degree of prepositionality of 37 deverbal prepositions by surveying native speakers. The total degree of prepositionality assumed by the analyses given in Sections 3.1 and 3.2 is shown in Figure 2.

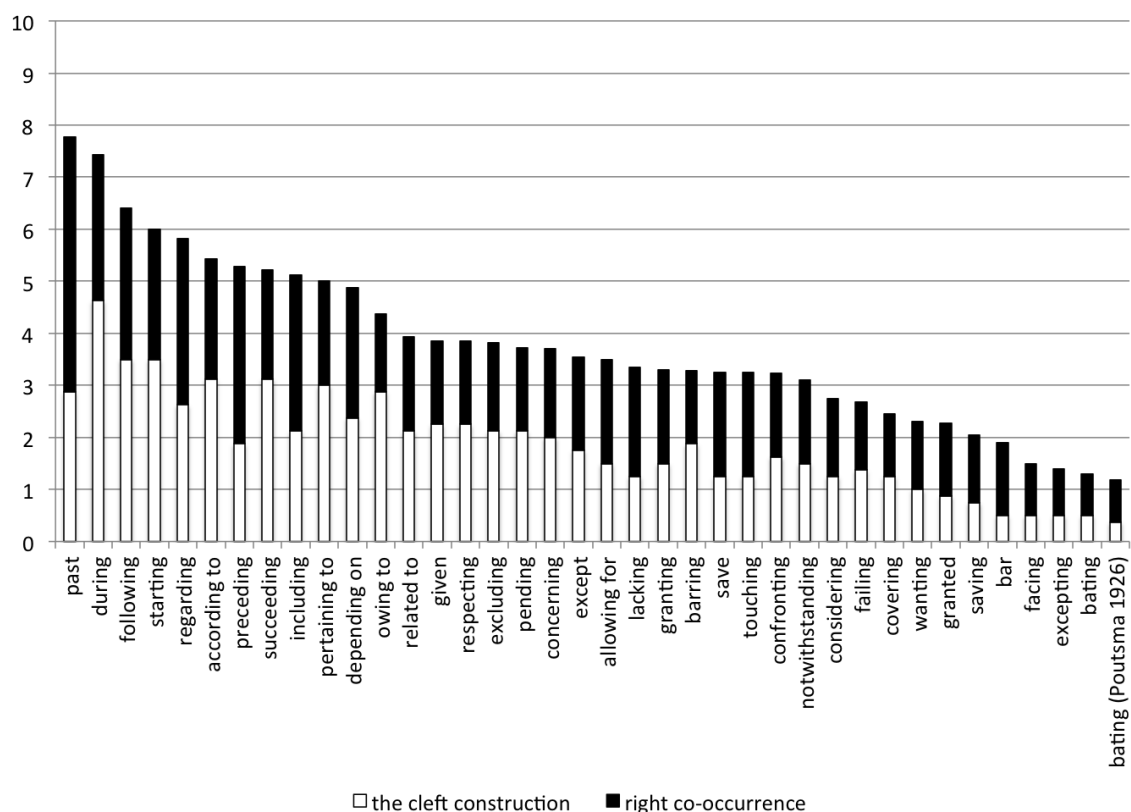


Figure 2: The prepositionality of deverbal prepositions

Note that the maximum score of prepositionality in the two tests was 5.0. If the item was marked at the highest level of prepositionality in the two tests, the prepositionality assumed from both tests was 10.0 (5.0 + 5.0). However, Figure 2 shows that only 10 out of 37 prepositions (*past*, *during*, *following*, *starting*, *regarding*, *according to*, *preceding*, *succeeding*, *including*, and *pertaining to*) scored 5.0 or more in terms of total degree of prepositionality. This indicates that deverbal prepositions are marginal in terms of prepositionality, i.e., typicality as prepositions, as well as “in their lexical class” (cf. Kortmann and König 1992: 683). Figure 2 also indicates that they are gradual in their degree of prepositionality, that is, in their stage of grammaticalization. If the stage of grammaticalization of each item proceeds similarly in degree, the amount of prepositionality also cannot differ greatly. Difference in score on prepositionality is indicative of gradualness in degree of grammaticalization. Moreover, the deverbal prepositions that express spatial and temporal meaning, such as *past*, *during*, *following*, *starting* (meaning *after* as a preposition; cf. LLA), and *succeeding* (which can presumably have the same meaning as *following*, i.e., *after*) score highly for degree of prepositionality. This result indicates that prepositions that have a spatial or temporal meaning are more similar to typical prepositions in terms of prepositionality. It is also noteworthy that items expressing spatial or temporal meaning

such as *during*, *following*, *starting*, *succeeding*, and *past* tended to score higher in Test 1, despite the fact that this test was not concerned with the meaning of the prepositions. On the other hand, Test 2 evaluated the meaning of each item, because the level of acceptability was scored higher when they had a spatio-temporal meaning (if they do not have such meanings, the prepositionality is generally lower). In particular, *past*, *during*, *following*, and *starting* scored higher than or equal to 2.5 in both Test 1 and Test 2. Thus, some relation can exist between prepositionality and the meanings typical in prepositions. It is assumed that the semantic factor related to spatio-temporal meaning motivates the typicality of prepositions.

4. Conclusion

This study attempted to measure the degree of prepositionality of deverbal prepositions using qualitative analysis. The results enable us to evaluate the prepositionality of deverbal prepositions, based on native speakers' judgments.

The contribution of this study is as follows. First, this study demonstrates that deverbal prepositions are marginal, because they tend to score lower in degree of prepositionality. As evidence for this, the highest item, *past*, scored 7.8, while the average prepositionality of the 37 items was 3.8/10.0. Second, this study has indicated that prepositionality is related to the semantics of prepositions, that is, their typicality as prepositions. The results from Test 1, which did not test the meaning of deverbal prepositions, had some overlap with the results of Test 2 (as discussed in 3.3). Third, both synchronic and diachronic aspects of language are deeply concerned with grammaticalization. The lowest prepositionality of *bating* and the relatively lower prepositionality of other deverbal prepositions in this study indicate that historically obsolete expressions tend to score low in acceptability. We can observe historical linguistic facts through present-day English. The "panchronic" perspective (that some aspects of language phenomena observed from the synchronic perspective can be motivated by the facts related to diachronic change; cf. Yamanashi 2000: 6–7) enables us to analyze the "panchronic" process of grammaticalization (cf. Croft 2000: 63, citing Heine, Claudi and Hünemeyer 1991).

As a final remark, I wish to mention remaining issues. For one thing, the relationship between prepositionality and verbality needs to be considered in greater detail. While the grammaticalization of deverbal prepositions is thought to gradually result from the loss of verbal property (see Section 2.4), it is arguable whether this simply means a gain in prepositionality (cf. Hayashi in press). Secondly, there is scope for comparison between items such as *bar*, *barring*, *save*, *saving*, and *excepting* with typical prepositions such as *but*, *except*, and *without* (cf. Koma 2001, Hayashi 2013b). Concerning the "layering" of

grammaticalization (see Fukaya 1997, Hopper and Traugott 2003, Akimoto 2014), differences exist in the use, usage, and using contexts as well as in prepositionality. Thirdly, there are some further examples that have yet to be studied, such as prepositional *ago* (Kortmann and König 1992) and *rising* (Ando 2005: 622), and tests that have not been examined, such as the “coordination test” (when a phrase can be coordinated with typical prepositions, it can be judged as a preposition, as in *He rushed in and down the stairs*; see Maruta and Hirata 2001: 122–123). Finally, the validity of the methodology is a discussion question for future study. This study has revealed some aspects of prepositionality through inspection by native speakers. However, an integrated corpus-based study and acceptability-based study would provide more rigorous results. Therefore, a corpus-based approach, such as that of Fukaya (1997), should be adopted in a future study.

Notes

- * This research was supported by JSPS KAKENHI 15J00373 and is a revised version of Hayashi (2013a, 2014), employing different types of sample sentence and an additional 10 deverbal prepositions. The sentence containing *rising*, which was examined in Hayashi (2013a, 2014), was excluded from this process, because it was judged to be “thoroughly unacceptable” by a native speaker of British English.
- 1. Thirty-seven prepositions were collected on the basis of the following standard: *-ing* (partly including *-en* or *-ed*) forms that are defined or referred to as (deverbal) prepositions in previous studies or dictionaries. The sources of the sentences including prepositions in (1) are provided in the *Appendix* and body section of this paper.
- 2. Hayashi (2014) searched COCA for “the target verbs + *-ly*” and then excluded other parts of speech ending in the form “*-ly*,” such as *family*, *friendly*, or *lovely*. Some example sentences from the analysis of Hayashi (2014) were created by the author and checked by a native speaker of British English.
- 3. As evidence, the description in previous studies differs. For example, regarding stranding and in particular reference to *concerning*, *during*, *except*, and *regarding*, Declerck (1991: 552) notes that “a number of prepositions cannot normally be found at the end of the relative clause.” On the other hand, Fukaya (1997) indicates an example of stranding of *concerning*, as in (8d).

Appendix

The sentences discussed in Section 3 follow (*italics mine*). The majority of the sentences were collected during my previous studies, because this paper presents a revised version of Hayashi (2013a). However, some sentences needed to be changed for a more accurate discussion. While this paper aims to further analyze sentences that have been discussed in

previous studies, 10 deverbal prepositions have been newly collected from previous studies and dictionaries. Thus, some sentences differ from those in Hayashi (2013a); the original sources and previous studies that cite and discuss the sentences follow. The sentences that include deverbal prepositions, for which there were no example sentences in previous studies or dictionaries (*granting*, *preceding*, *succeeding*, *touching*, and *wanting*) were created by the author; existing examples, such as *following* in (A17) below, are substituted with examples of deverbal prepositions that presumably have the same meaning, such as *succeeding* in (A35). In the case of *bating*, which had already become obsolete by around 1970 (cf. Visser 1972: 1218), the example sentence (A5') is substituted with a sentence (A4) using *barring* (assumed to have a similar meaning; cf. KNED), because the example (A5) from Poutsma (1926) is from approximately 90 years ago.

- (A1) You've been absent six times *according to* our records. (OALD)
- (A2) It will take about an hour to get there, *allowing for* traffic delays. (OALD)
- (A3) The students all attended, *bar* two who were ill. (OALD)
- (A4) *Barring* accidents, we should arrive on time. (OALD)
- (A5) *Bating* a little wilfulness, I don't know a more honest or gentle creature.
(THACK, Pend., II, Ch. XVI, 163.; cited from Poutsma 1926: 712)
- (A5') *Bating* accidents, we should arrive on time. (example sentence from (A4))
- (A6) He asked me *concerning* my health. (Zandvoort 1972: 35)
- (A7) Drug abuse is one of the problems *confronting* modern Western society. (Genius)
- (A8) *Considering* his age, he looks very young. (Ando 2005: 622)
- (A9) The remainder will be paid in installments *covering* a period of five years. (KDEC)
- (A10) Prices vary widely *depending on* where you live. (OBED)
- (A11) He was taken to the hospital *during* the night. (OALD)
- (A12) We work every day *except* Sunday. (OALD)
- (A13) Everyone was present, not *excepting* Tom. (Genius)
- (A14) Lunch costs £10 person, *excluding* drinks. (OALD)
- (A15) With some dealers *facing* decreasing sales, something's got to give. (Genius)
- (A16) *Failing* instructions, I did what I thought best. (Genius)
- (A17) Dickens died in 1870 *following* a collapse. (Radden and Dirven 2007: 29)
- (A18) *Given* the present conditions, I think she's done rather well. (Quirk *et al.* 1985: 660)
- (A19) *Granted* his obsequious manner, I still think he's ambitious enough to do the job.
(Quirk *et al.* 1985: 667)
- (A20) *Granting* his age, he looks very young.
(example sentence from (A8); cf. Declerck 1991: 43)
- (A21) I've got three days' holiday *including* New Year's Day. (OALD)

- (A22) He was a wild young man, completely *lacking* reserve. (KDEC)
- (A23) He is very active *notwithstanding* his age. (Genius)
- (A24) The game was cancelled *owing to* torrential rain. (OALD)
- (A25) He hurried *past* them without stopping. (OALD)
- (A26) Research was underway *pending* formal approval. (KDEC)
- (A27) He offered information *pertaining to* the accident. (KDEC)
- (A28) He talked of the time *preceding* the tragedy. (example sentence from KDEC)
- (A29) She has said nothing *regarding* your request. (OALD)
- (A30) The results included \$5 million pre-tax charge *related to* workforce reductions.
(OBED)
- (A31) I am writing to make an inquiry *respecting* the necessary procedures for becoming a
member of your society. (KDEC)
- (A32) We know nothing about her *save* her name. (OALD; cited from Koma 2001: 77)
- (A33) *Saving* your presence I don't think the suggestion is very sensible.
(LDCE; cited from Koma 2001: 78)
- (A34) *Starting* today Miss Carey will be in charge of the Sales Department. (LLA)
- (A35) Dickens died in 1870 *succeeding* a collapse. (example sentence from (A17))
- (A36) She has said nothing *touching* your request.
(example sentence from (A29); cf. Ando 2005: 652)
- (A37) Tom gave me a book *wanting* a cover. (example sentence; cf. Readers)

For Test 1, the sentences in (B1-B37) were created from (A1-A37) (see Section 3.1 for details).

- (B1) It is *according to* our records that you've been absent six times.
- (B2) It will be *allowing for* traffic delays that it will take about an hour to get there.
- (B3) It was *bar* two who were ill that the students all attended.
- (B4) It is *barring* accidents that we should arrive on time.
- (B5) It is *bating* a little wilfulness that I don't know a more honest or gentle creature.
- (B5') It is *bating* accidents that we should arrive on time.
- (B6) It was *concerning* my health that he asked me.
- (B7) It is *confronting* modern Western society that drug abuse is one of the problems.
- (B8) It is *considering* his age that he looks very young.
- (B9) It will be *covering* a period of five years that the remainder will be paid in
installments.
- (B10) It is *depending on* where you live that prices vary widely.
- (B11) It was *during* the night that he was taken to the hospital.

- (B12) It is *except* Sunday that we work every day.
- (B13) It is not *excepting* Tom that everyone is present.
- (B14) It is *excluding* drinks that Lunch costs \$10 person.
- (B15) It was *facing* decreasing sales that with some dealers, something's got to give.
- (B16) It was *failing* instructions that I did what I thought best.
- (B17) It was *following* a collapse that Dickens died in 1870.
- (B18) It is *given* the present conditions that I think she's done rather well.
- (B19) It is *granted* his obsequious manner that I still think he's ambitious enough to do the job.
- (B20) It is *granting* his age that he looks very young.
- (B21) It is *including* New Year's Day that I've got three days' holiday.
- (B22) It was *lacking* reserve that he was a wild young man.
- (B23) It is *notwithstanding* his age that he is very active.
- (B24) It was *owing* to torrential rain that the game was cancelled.
- (B25) It was *past* them that he hurried without stopping.
- (B26) It was *pending* formal approval that research was underway.
- (B27) It was *pertaining to* the accident that he offered information.
- (B28) It was *preceding* the tragedy that he talked of the time.
- (B29) It is *regarding* your request that she has said nothing.
- (B30) It was *related to* workforce reductions that the results included a \$5 million pre-tax charge.
- (B31) It is *respecting* the necessary procedures for becoming a member of your society that I am writing to make an inquiry.
- (B32) It is *save* her name that they know nothing about her.
- (B33) It is *saving* your presence that I don't think the suggestion is very sensible.
- (B34) It will be *starting* today that Miss Carey will be in charge of the Sales Department.
- (B35) It was *succeeding* a collapse that Dickens died in 1870.
- (B36) It was *touching* your request that she has said nothing.
- (B37) It was *wanting* a cover that Tom gave me a book.

For Test 2, the sentences in (C1-C37) were formed from (A1-A37) (see Section 3.2 in detail).

- (C1) You've been absent six times right *according to* our records.
- (C2) It will take about an hour to get there, right *allowing for* traffic delays.
- (C3) The students all attended, right *bar* two who were ill.
- (C4) Right *barring* accidents, we should arrive on time.
- (C5) Right *bating* a little wilfulness I don't know a more honest or gentle creature.

- (C5') Right *bating* accidents, we should arrive on time.
- (C6) He asked me right *concerning* my health.
- (C7) Drug abuse is one of the problems right *confronting* modern Western society.
- (C8) Right *considering* his age, he looks very young.
- (C9) The remainder will be paid in installments right *covering* a period of five years.
- (C10) Prices vary widely right *depending on* where you live.
- (C11) He was taken to the hospital right *during* the night.
- (C12) We work every day right *except* Sunday.
- (C13) Everyone is present, not right *excepting* Tom.
- (C14) Lunch costs \$10 person, right *excluding* drinks.
- (C15) With some dealers right *facing* decreasing sales, something's got to give.
- (C16) Right *failing* instructions, I did what I thought best.
- (C17) Dickens died in 1870 right *following* a collapse.
- (C18) Right *given* the present conditions, I think she's done rather well.
- (C19) Right *granted* his obsequious manner, I still think he's ambitious enough to do the job.
- (C20) Right *granting* his age, he looks very young.
- (C21) I've got three days' holiday right *including* New Year's Day.
- (C22) He was a wild young man, right *lacking* reserve.
- (C23) He is very active right *notwithstanding* his age.
- (C24) The game was cancelled right *owing to* torrential rain.
- (C25) He hurried right *past* them without stopping.
- (C26) Research was underway right *pending* formal approval.
- (C27) He offered information right *pertaining to* the accident.
- (C28) He talked of the time right *preceding* the tragedy.
- (C29) She has said nothing right *regarding* your request.
- (C30) The results included a \$5 million pre-tax charge right *related to* workforce reductions.
- (C31) I am writing to make an inquiry right *respecting* the necessary procedures for becoming a member of your society.
- (C32) We know nothing about her right *save* her name.
- (C33) Right *saving* your presence I don't think the suggestion is very sensible.
- (C34) Right *starting* today Miss Carey will be in charge of the Sales Department.
- (C35) Dickens died in 1870 right *succeeding* a collapse.
- (C36) She has said nothing right *touching* your request.
- (C37) Tom gave me a book right *wanting* a cover.

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動詞派生前置詞の前置詞性

林智昭

語彙項目は、どのようにして文法項目へと変化していくのだろうか。この問題は、文法化研究において、名詞・動詞といった語彙項目に属する語（内容語）が、通時的なプロセスを経て、前置詞・接続詞といった文法機能を表す語（機能語）へと変化していく現象の研究などを通して、様々な研究者が関心を寄せている。その中でも、*during*, *failing*, *notwithstanding*, *except*, *past* などの通時的に動詞に由来する前置詞、いわゆる「動詞派生前置詞 (deverbal prepositions)」は、通言語的に見られる興味深い文法化事例のひとつとして着目されている。本稿では、これらの現象を、共時的観点から統語的・意味論的に規定していくことを目的とする。本研究では、動詞から前置詞へ段階的に文法化が進むものと想定する。そのため、「動詞であるのか、前置詞であるのか」というような二分法で議論することを避け、動詞派生前置詞の前置詞性 (prepositionality) を見出す。具体的には、先行研究および辞書より収集した 37 種類の動詞派生前置詞を分析対象として作例を行い、Emonds (1976) による以下のテストを用いて調査を行った: (i) 分裂文 (the cleft construction)、(ii) 強意の副詞 *right* との共起可能性。英語母語話者の内省により容認度を調査し、その結果に基づき前置詞性を算出した。分析を通して、*past*, *during*, *following*, *starting*, *regarding*, *according to*, *preceding*, *succeeding*, *including*, *pertaining to* を除く動詞派生前置詞は前置詞性が低いものと位置づけられた。本稿が提示した前置詞性の分布は、文法化の進行度に段階性が見られることを示唆する。また、テスト (i) に加え、空間的・時間的意味をもつ事例の前置詞性が高いと判定される (ii) においても *past*, *during*, *following*, *starting* の前置詞性が高いと判定されることから、これらの意味が、前置詞としての典型性に関わりをもつ可能性があると指摘した。本研究のアプローチは、共時的分析を通して、文法化という通時的・共時的側面の接点へと迫る汎時的（パンクロニック）な視座を提供するものである。